REMARKS

Favorable reconsideration is respectfully requested.

The claims are 11 to 28, with claims 11 to 18 being withdrawn from consideration.

The above amendment is responsive to points set forth in the Official Action.

In this regard, a new set of claims is presented i.e. claims 19 to 28.

These new claims correspond to previous claim 1 to 10, respectively.

The above amendment is responsive to points set forth in the Official Action as will be explained below.

With regard to the rejection of previous claims 1 to 10 under 35 U.S.C. § 112 as indefinite, active terminology is now recited.

With regard to rejection of previous claim 2, the Examiner's suggestion has been adopted in replacement claim 20.

The rejection of claim 1 on obviousness-type double patenting over claim 15 of U.S. 6,436,245 is respectfully traversed.

The subject matter of the present invention is to prevent the polymerization of the easily polymerizable compound which flows into a vacuum section of an easily polymerizable compound purification system. On the other hand, claim 15 of U.S. 6,436,245 relates to a process for the purification of liquid, utilizing a purification tower. What the present invention focuses on is inhibiting the polymerization in the vacuum section, not the purification of liquid utilizing a purification tower. Further claim 15 is silent as to the use of polymerization inhibitor. Therefore, the scope of the present invention is absolutely different from that of U.S. 6,436,245 and it would not have been appropriate to assert claims to the present, very different invention in the earlier patent.

Accordingly, the rejection on double patenting is untenable.

Claim 1 is rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Hego et al. (US 5,770,021).

This rejection is respectfully traversed.

In a purification system for an easily polymerizable compound, it is impossible to completely prevent the gas containing the easily polymerizable compound from flowing into the

vacuum section from the purification section. If the easily polymerizable compound, which flows into the vacuum section, polymerizes in the vacuum section , the resultant polymer clogs a condenser, a liquid ejector, or a nash pump. As a result, the vacuum section is frequently forced to stop (page 4, lines 2 to 4). In view of the above problems, the present invention focuses on inhibiting the polymerization of the easily polymerizable compound in the vacuum section.

Hego et al. relates to a process for purifying acrolein present in a feed gas stream including acrolein, and discloses "A compound that inhibits the polymerization of acrolein and of acrylic acid may be added to the recycled liquid stream." (column 3, lines 38 to 40).

First of all, what Hego et al. discloses is the purification system of acrolein. The apparatus shown in Hego et al. (Fig. 1) is intended for the purification of a gaseous mixture originating from a unit 30 for the gas-phase oxidation of propylene (column 5, lines 43 to 45). Although the polymerization inhibitor is added in the recycled liquid stream, the section where the polymerization would be inhibited is a cooling column 1 in the purification section. Thus, the present invention is unobviously different from Hego et al. who merely inhibits the polymerization in the purification section.

Further, Hego et al. treats the gaseous mixture which flows into the cooling column 1 directly from unit 30 of the gas-phase oxidation of propylene. On the other hand, the present invention treats a gas containing an easily polymerizable compound from a purifying section. Therefore, the present invention is absolutely different from Hego et al. in regard to the section where the gas containing the polymerizable compound originates from.

Accordingly, the rejection under 35 USC 102 over Hego et al. is untenable.

Claims 2-5 and 9-10 are rejected under 35 USC 103(a) as being unpatentable over Hego et al. and Nezu et al.

This rejection is also respectfully traversed.

Firstly, there is no motivation to combine Hego et al. and Nezu et al. Since there is no suggestion in Hego et al., it is not apparent how the vacuum pump disclosed in Nezu et al. is applied to the purifying system in Hego et al., for example, where the vacuum pump should be placed.

Secondly, Hego et al. discloses that the cooling column 1 operates at the elevated pressure ranging from 10^5 to $3x10^5$ Pa (column 3, lines 28 to 29). Therefore, there is no motivation to apply the vacuum pump disclosed in Nezu et al. for the purification system disclosed in Hego et al.

Further, Hego et al. merely discloses that the polymerization is inhibited in the purification system, as described above. Thus, even if Nezu et al. is combined with Hego et al., the present invention that focuses on inhibiting the polymerization in the vacuum section is not disclosed.

Futhermore, it should be noted that Nezu et al. does not disclose a vacuum section as described in the present invention, but just a vacuum pump 31 (Fig 1).

Therefore, the present invention is not obvious over Hego et al. in view of Nezu et al.

With regard to the rejection of claims 6-8, rejected under 35 USC 103(a) as being unpatentable over Hego et al. in view of Popov (US 6,398,818) or JP 10204030, it is apparent that the secondary references do not overcome the deficiencies of the primary reference.

Therefore, claims 6-8 are unobvious from the reference teachings for reasons set forth above.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned at the telephone number below.

Respectfully submitted,

Yukihiro MATSUMOTO et al.

By: _____

Matthew Jacob
Registration No. 25,154
Attorney for Applicants

MJ/jlg
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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Version with Markings to Show Changes Made

Page 1, lines 5-10, please rewrite the paragraph as follows:

The present invention relates to a process for inhibiting a polymerization in a vacuum system, which is used for purifying an **easily polymerizable** **[easily-polymerization]** compound such as (meth) acrylic acid and (meth) acrylate under a reduced pressure. The invention also relates to the easily polymerizable compound purification system.

Page 2, line 6, to page 3, line 7, please rewrite the paragraphs as follows:

An easily polymerizable compound is usually distilled in the distillation column 1 under a reduced pressure. The pressure inside the distillation column 1 is controlled by the closing and opening of an air regulating valve 8, while the air regulating valve 8 is controlled on the basis of measurements obtained by a pressure gauge 7. Most of the resulting distilled compound is condensed through a condenser.

2. The exhaust gas from the condenser 2 flows into a vacuum section by the aid of a steam ejector E1 which is reducing a pressure of a purifying section. The gas usually contains the easily polymerizable compound which is not condensed through the condenser 2 and other noncondensing gases. The gas and steam through the steam ejector E1 are condensed in a barometric condenser 3 by contacting the gas with a cooling liquid directly. The resulting condensate is withdrawn into **[a]** **an** ejector seal tank 6 and a **[remained]** **remaining** gas is sucked into the second steam ejector E2. The gas and steam from the second steam ejector E2 are condensed through a surface condenser 4 and the resulting condensate is withdrawn into the ejector seal tank 6 and **the remaining** **[a remained]** gas is sucked into the third steam ejector E3. In the case of a surface condenser, the gas is condensed without direct contact with a cooling water. The gas from the third ejector E3 is condensed through a surface condenser 5 attached at the downstream side of the third ejector E3. Generally, both the resulting condensate and a **[remained]** **remaining** gas are liquid-sealed by the ejector seal tank 6. In some processes, the gas is not liquid-sealed at a final stage.